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The following details have been taken from the documents submitted by the applicant

Composite system

The invention relates to a composite system comprising
A. open-celled flexible foam panels based on
melamine/formaldehyde resins and
B. layers composed of fibre non-wovens or wovens
which are preferably difficult to ignite
with the panels A and the layers B being
mechanically connected to one another.

Description

The invention relates to a composite system comprising open-celled, flexible foam panels composed of melamine resin and fibre non-woven, or woven fibres.

Open-celled foam panels composed of melamine resin are used as ceiling or wall trim because of their good sound insulation characteristics. The further development of these trims has led to the requirement to improve their external appearance and their mechanical load capability. This is achieved by the present invention.

The subject matter of the invention is in consequence a composite system comprising:

- A. one or more panels composed of open-celled, flexible foam based on melamine/formaldehyde resins and
- B. one or more layers composed of fibre non-woven or woven fibres,

with the panels A and the layers B being mechanically connected to one another.

The visual characteristics of the foam panels are improved by coating them with the fibre non-woven or non-woven fibres, resulting in versatile configuration and design options. The coating also prevents the open-celled foam panels from being contaminated by dirt and, finally, also improves the mechanical load capability of the panels.

Open-celled, flexible foam panels A composed of melamine resins are well-known, for example as described in EP-B 71 672. One corresponding commercial product is BASOTECT from the BASF Company. For the application according to the invention, the panels are

preferably 5 to 80 mm thick, in particular 10 to 50 mm thick, and their edge length is 200 to 1000 mm.

The coating can be carried out using conventional fibre non-wovens or woven fibres, for example based on glass fibres, polyester fibres, carbon fibres and aramide fibres. Natural fibres that have been made flame-resistant can also be used.

The layers B are preferably 0.1 to 3 mm thick, and the fibre layer should be difficult to ignite or non-combustible in accordance with DIN 4102, that is to say should comply with the requirements of fire class B1 or A2.

The panels A can be mechanically connected to the layers B for example by sewing, rendering, tacking, needlework or riveting. It is expedient to use non-combustible yarns, for example composed of PTFE or aramide fibres, or non-combustible pins, needles and rivets, for example composed of steel or aluminium, for this purpose.

The layer structure may be as required depending on the application, for example $(A-B)_n$ and $(B-A-B)_n$, where $n = 1$ or 2 ; the layer structure is preferably A-B, with the fibre layer B being on the visible side of the composite.

The composite system according to the invention can be used for ceiling and wall trims and, in the case of partition walls which have to comply with fire-protection requirements, furthermore as individual parts in rail vehicles, aircraft and watercraft.

Patent Claims

1. Composite system, comprising
 - A. one or more panels composed of open-celled, flexible foam based on melamine/formaldehyde resins and
 - B. one or more layers composed of fibre non-woven or woven fibres,
with the panels A and the layers B being mechanically connected to one another.
2. Composite system according to Claim 1 with the layer structure A-B.
3. Composite system according to Claim 1, characterized in that the fibre non-woven or the woven fibres are difficult to ignite or are non-combustible in accordance with DIN 4102.
4. Composite system according to Claim 1, characterized in that the panels A are 5 to 80 mm thick.
5. Composite system according to Claim 1, characterized in that the layers B are 0.1 to 3 mm thick.